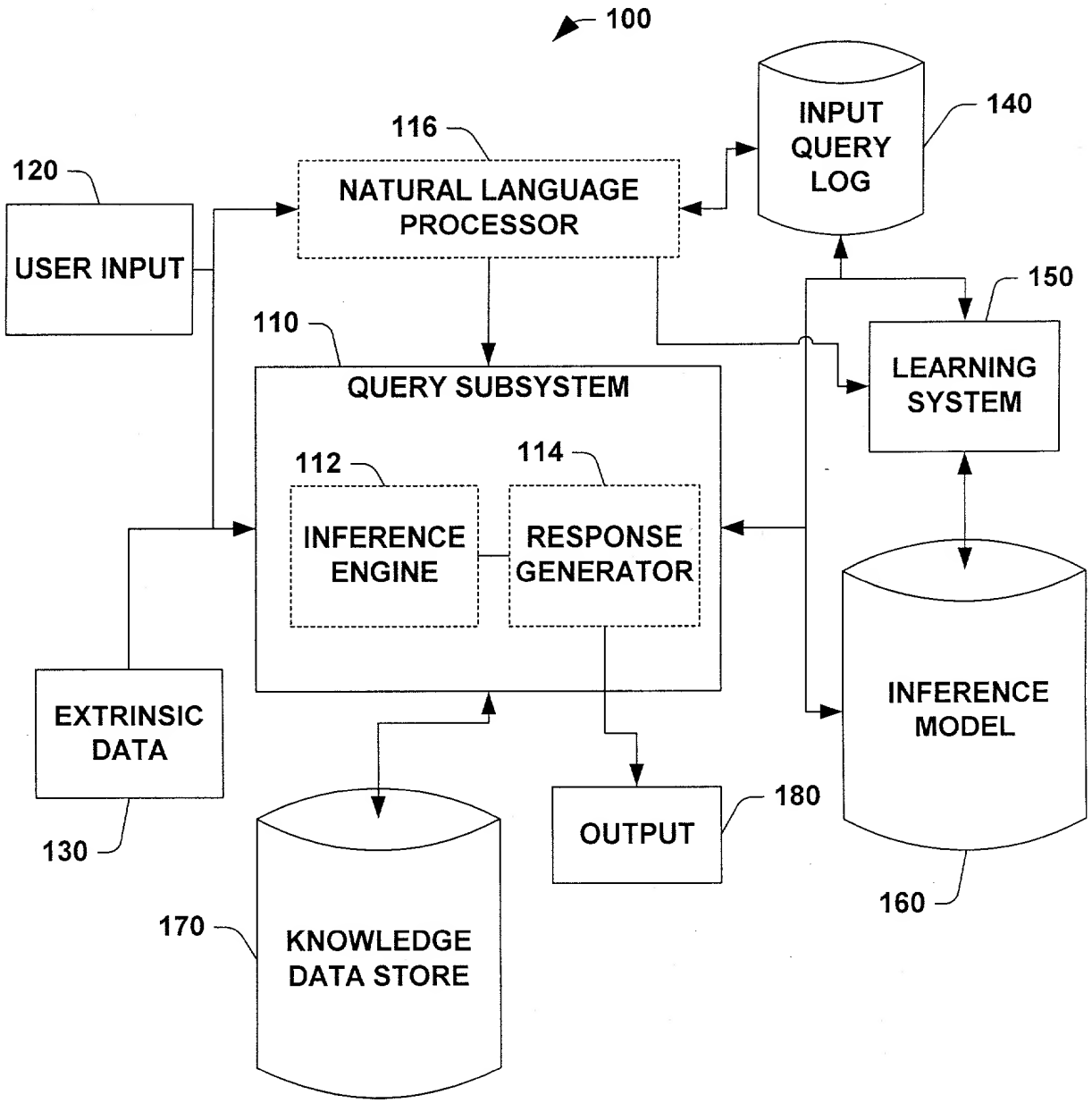
100
INPUT QUERY LOG
140
116
NATURAL LANGUAGE PROCESSOR
120
USER INPUT
150
110
QUERY SUBSYSTEM
LEARNING SYSTEM
112
114
INFERENCE ENGINE
RESPONSE GENERATOR
INFERENCE MODEL
EXTRINSIC DATA
130
OUTPUT
180
160
170
KNOWLEDGE DATA STORE

FIG. 1

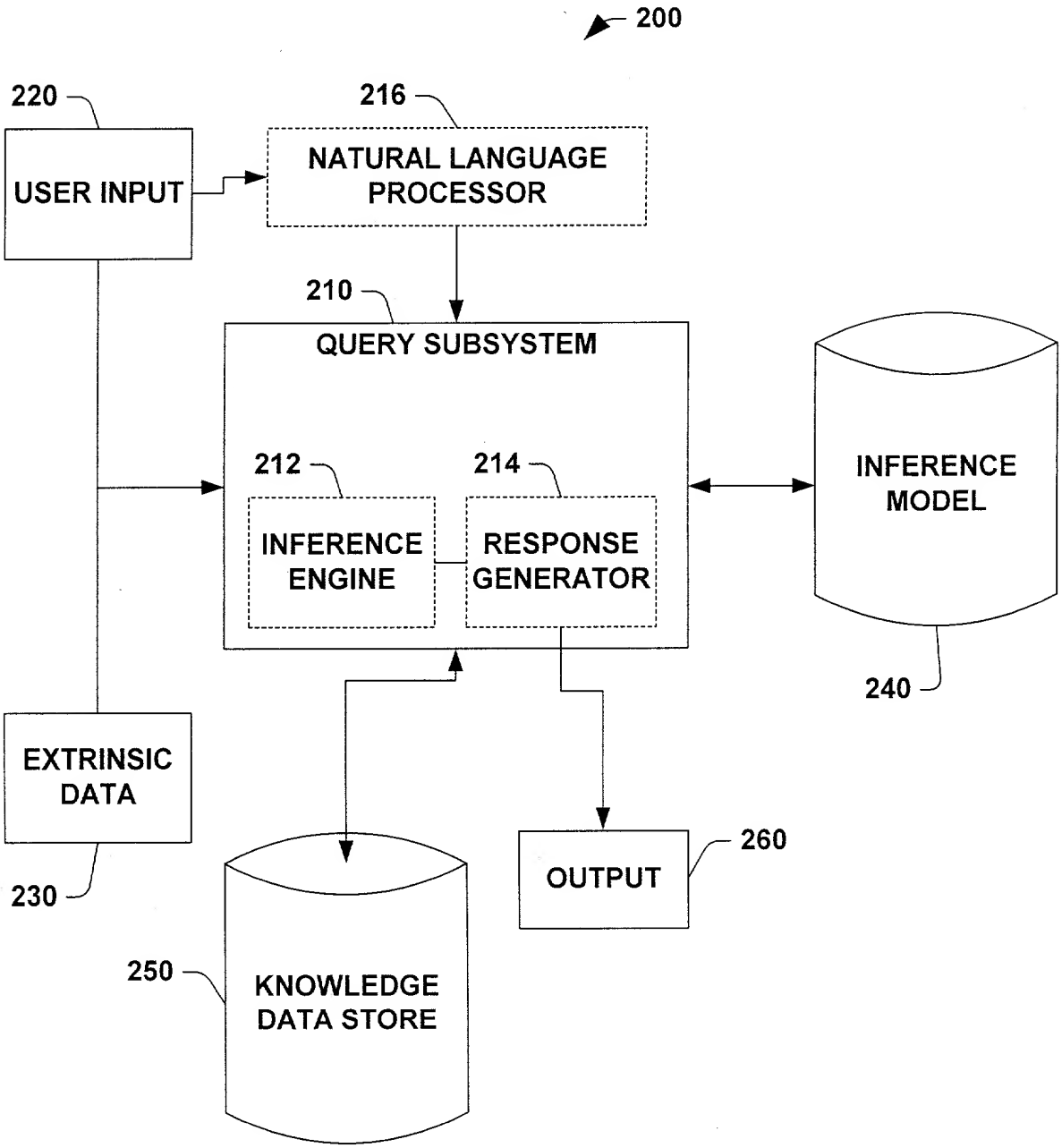
200
220
USER INPUT
216
NATURAL LANGUAGE PROCESSOR
210
QUERY SUBSYSTEM
212
INFERENCE ENGINE
214
RESPONSE GENERATOR
INFERENCE MODEL
240
EXTRINSIC DATA
230
OUTPUT
260
250
KNOWLEDGE DATA STORE

FIG. 2

COPY OF PAPERS ORIGINALLY FILED

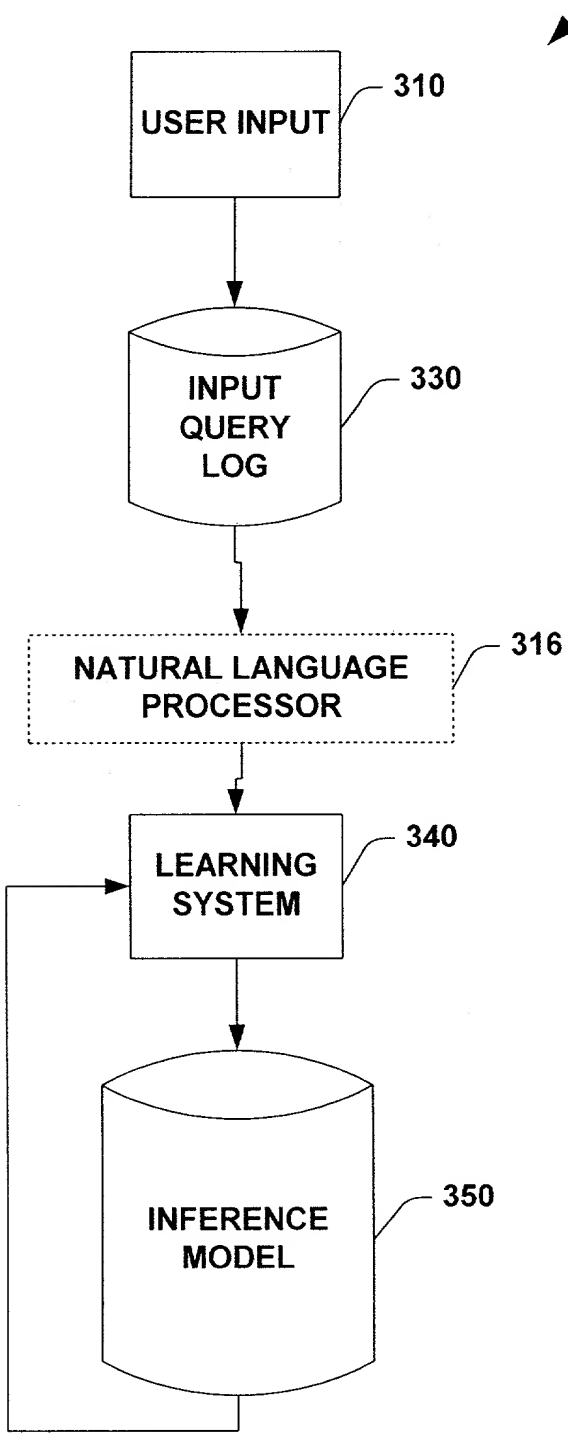

FIG. 3

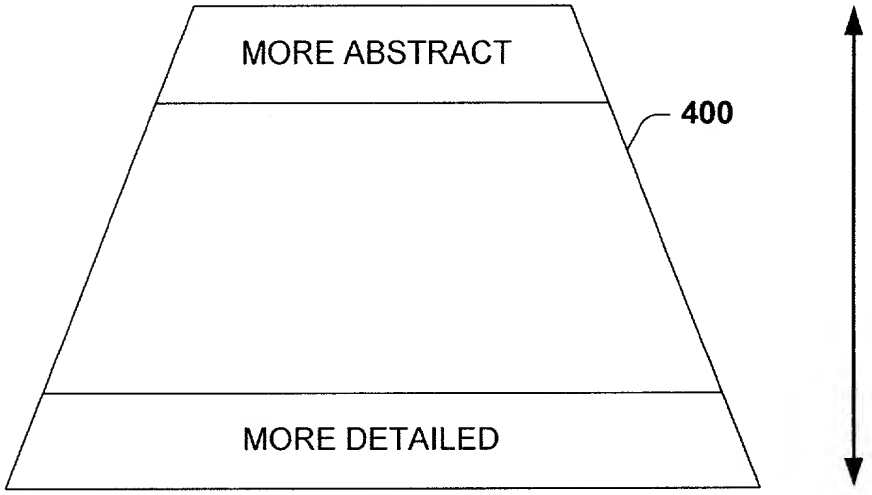

FIG. 4

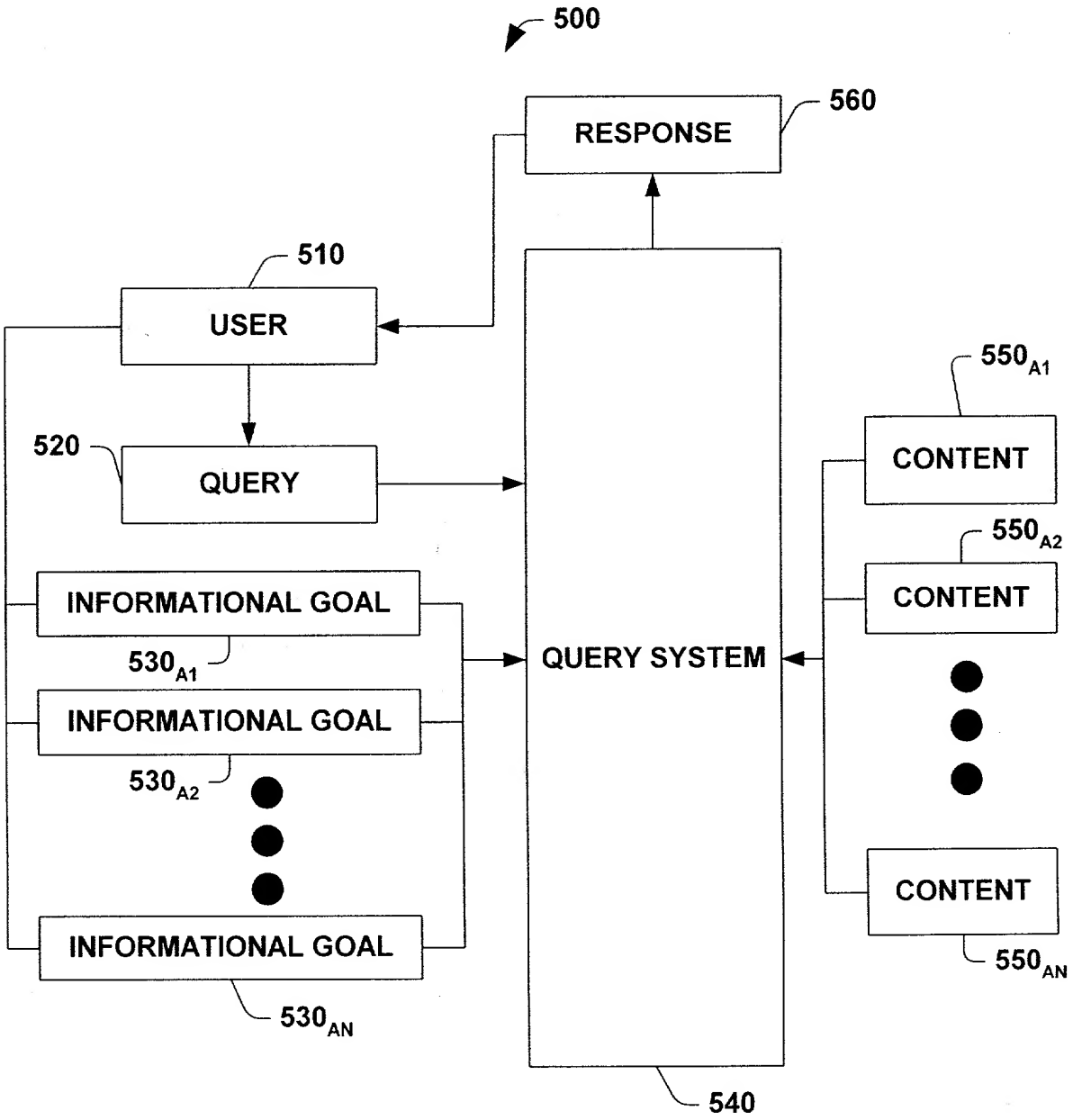
500
RESPONSE
560
510
USER
520
QUERY
INFORMATIONAL GOAL
530A1
INFORMATIONAL GOAL
530A2
INFORMATIONAL GOAL
530AN
QUERY SYSTEM
540
550A1
CONTENT
550A2
CONTENT
CONTENT
550AN

FIG. 5

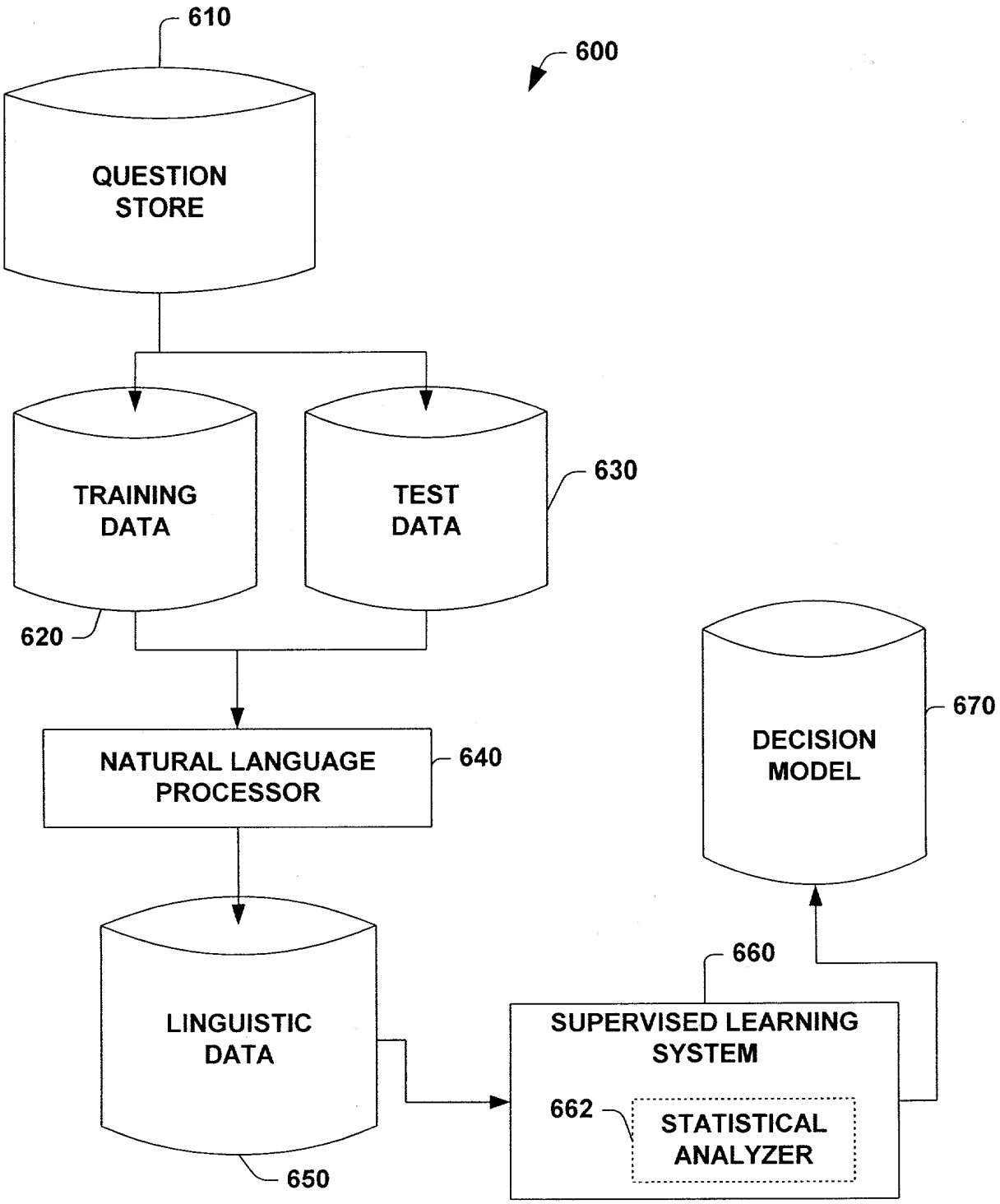
610
600
QUESTION STORE
TRAINING DATA
TEST DATA
630
620
NATURAL LANGUAGE PROCESSOR
640
DECISION MODEL
670
660
LINGUISTIC DATA
SUPERVISED LEARNING SYSTEM
662
STATISTICAL ANALYZER
650

FIG. 6

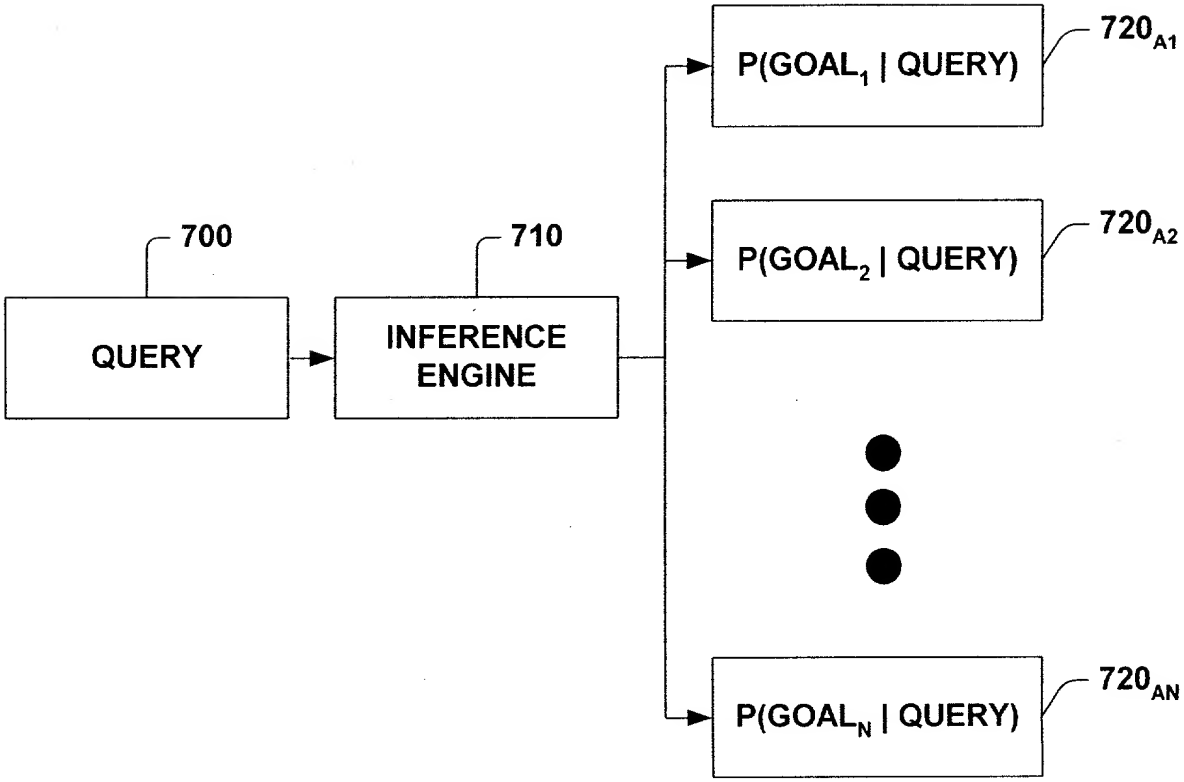
700
710
QUERY
INFERENCE ENGINE
P(GOAL$_1$ | QUERY)
P(GOAL$_2$ | QUERY)
P(GOAL$_N$ | QUERY)
720$_{A1}$
720$_{A2}$
720$_{AN}$

FIG. 7

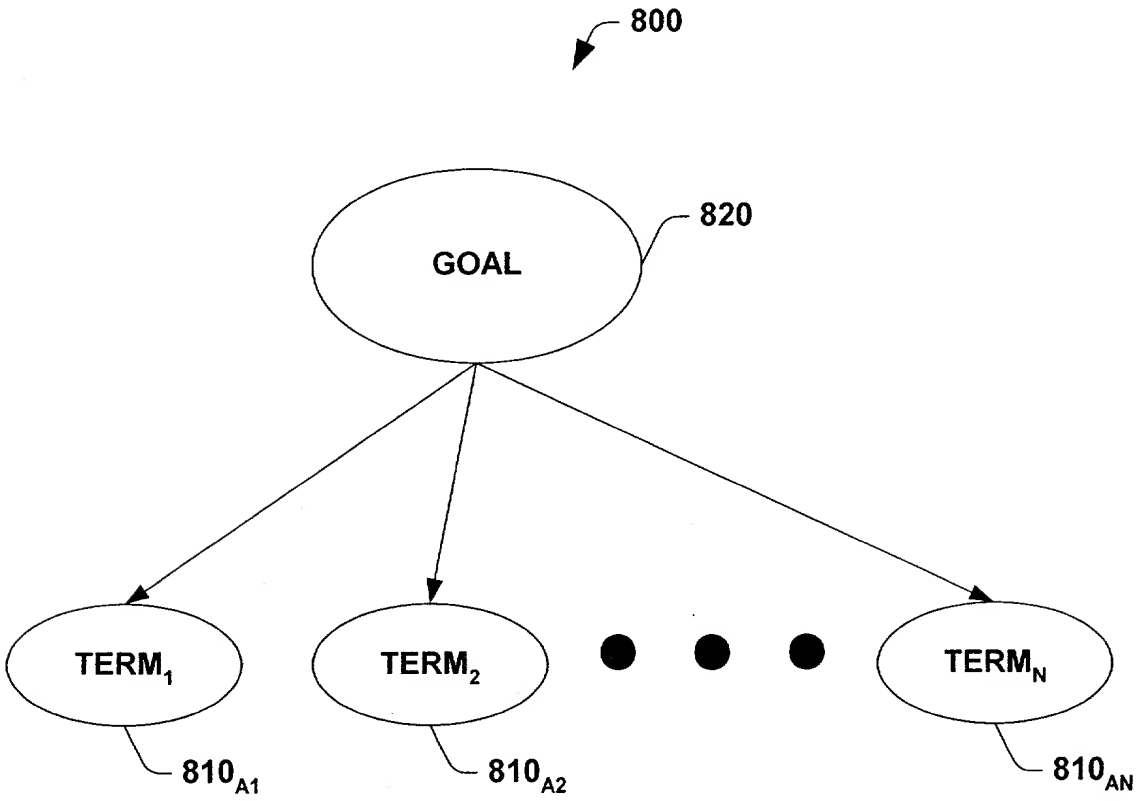

FIG. 8

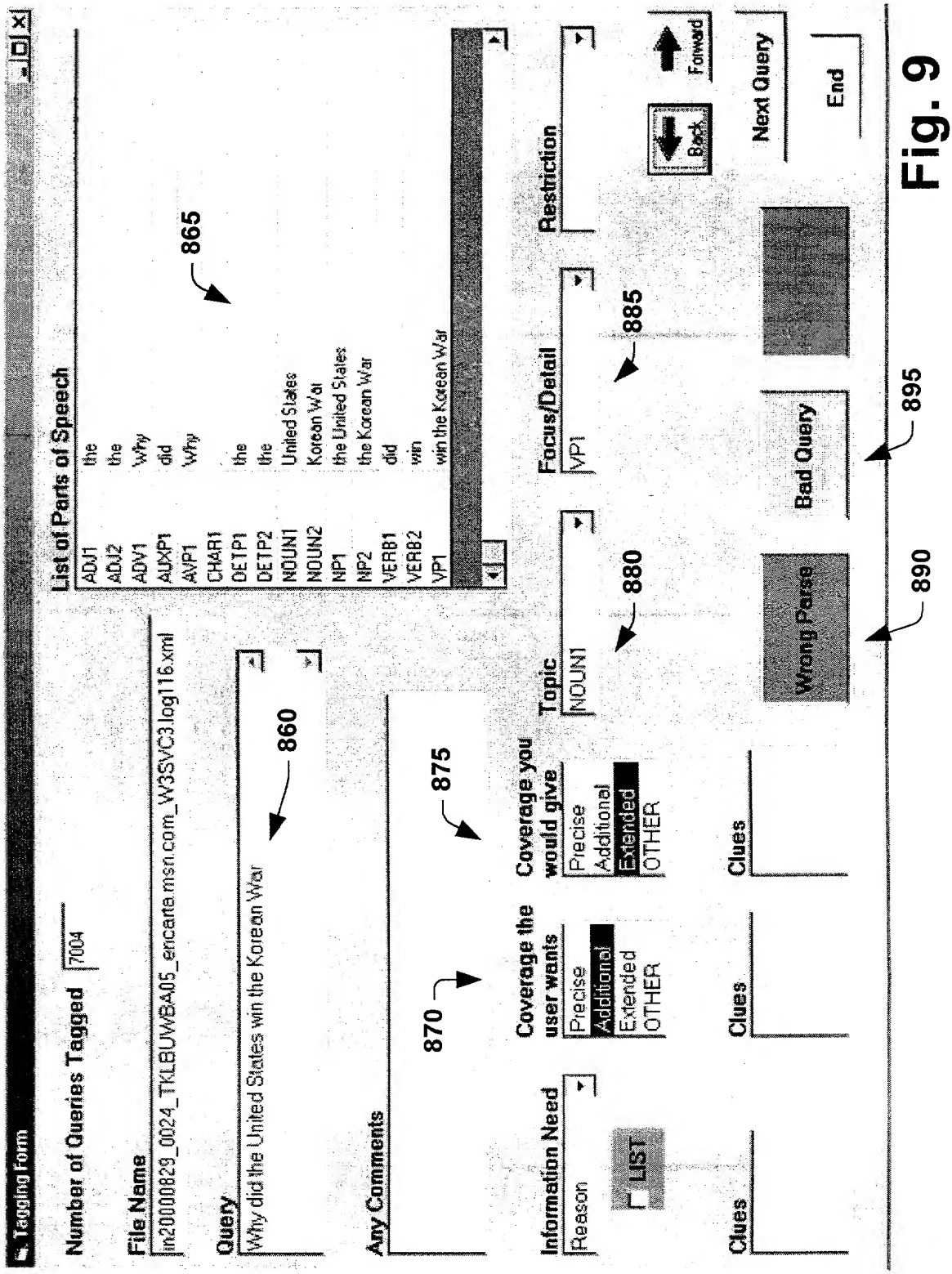
850
Tagging Form
Number of Queries Tagged
7004
File Name
in20000829_0024_TKLBUWBA05_encarta.msn.com_W3SVC3.log116.xml
Query
Why did the United States win the Korean War
860
List of Parts of Speech
ADJ1 the
ADJ2 the
ADV1 Why
AUXP1 did
AVP1 Why
CHAR1
DETP1 the
DETP2 the
NOUN1 United States
NOUN2 Korean War
NP1 the United States
NP2 the Korean War
VERB1 did
VERB2 win
VP1 win the Korean War
865
Any Comments
870
875
Information Need
Reason
LIST
Clues
Coverage the user wants
Precise
Additional
Extended
OTHER
Clues
Coverage you would give
Precise
Additional
Extended
OTHER
Clues
Topic
NOUN1
880
Wrong Parse
890
Focus/Detail
VP1
885
Restriction
Bad Query
895
Back
Forward
Next Query
End

Fig. 9

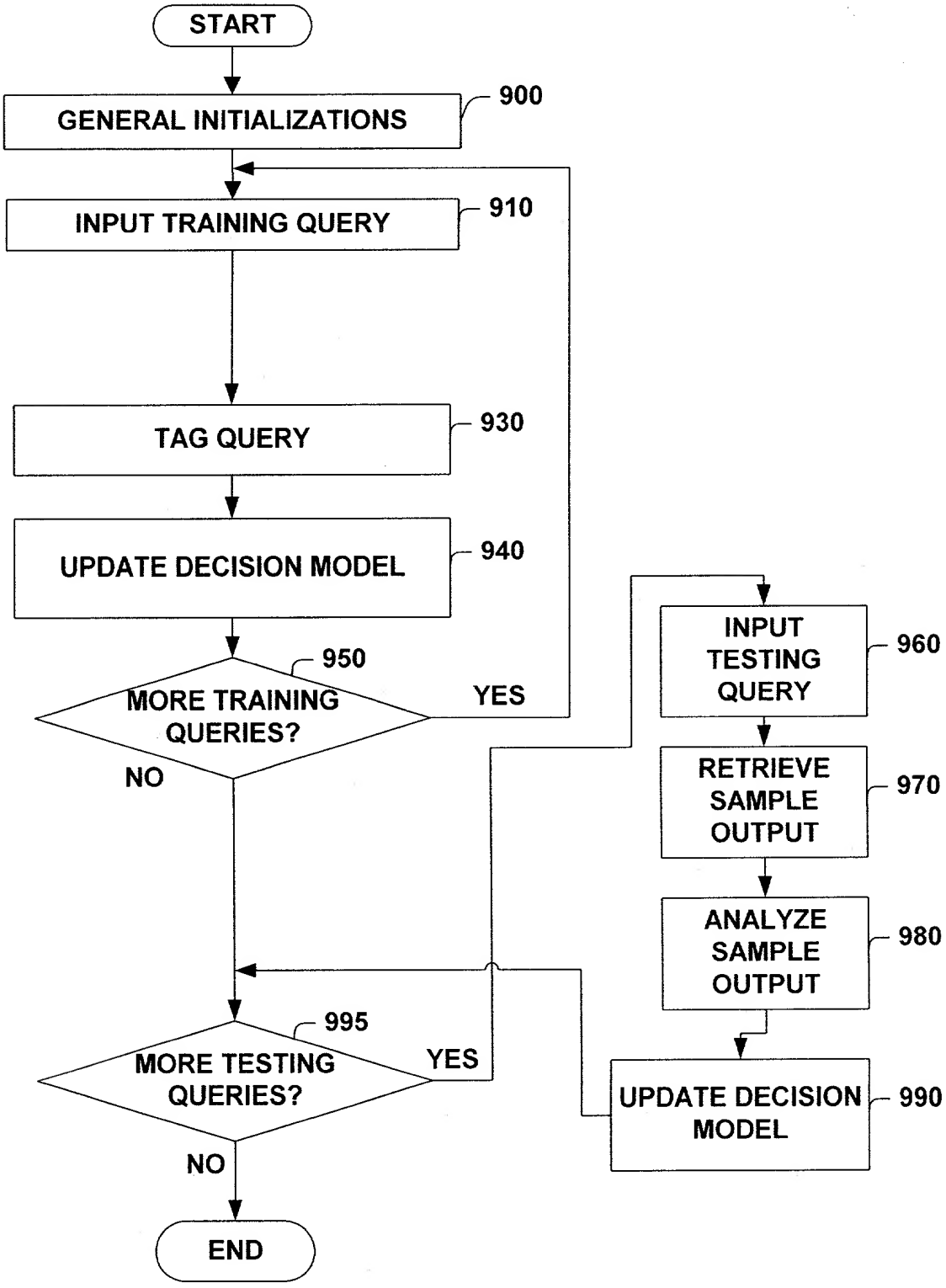
START
GENERAL INITIALIZATIONS
900
INPUT TRAINING QUERY
910
TAG QUERY
930
UPDATE DECISION MODEL
940
MORE TRAINING QUERIES?
950
YES
NO
INPUT TESTING QUERY
960
RETRIEVE SAMPLE OUTPUT
970
ANALYZE SAMPLE OUTPUT
980
UPDATE DECISION MODEL
990
MORE TESTING QUERIES?
995
YES
NO
END

Fig. 10

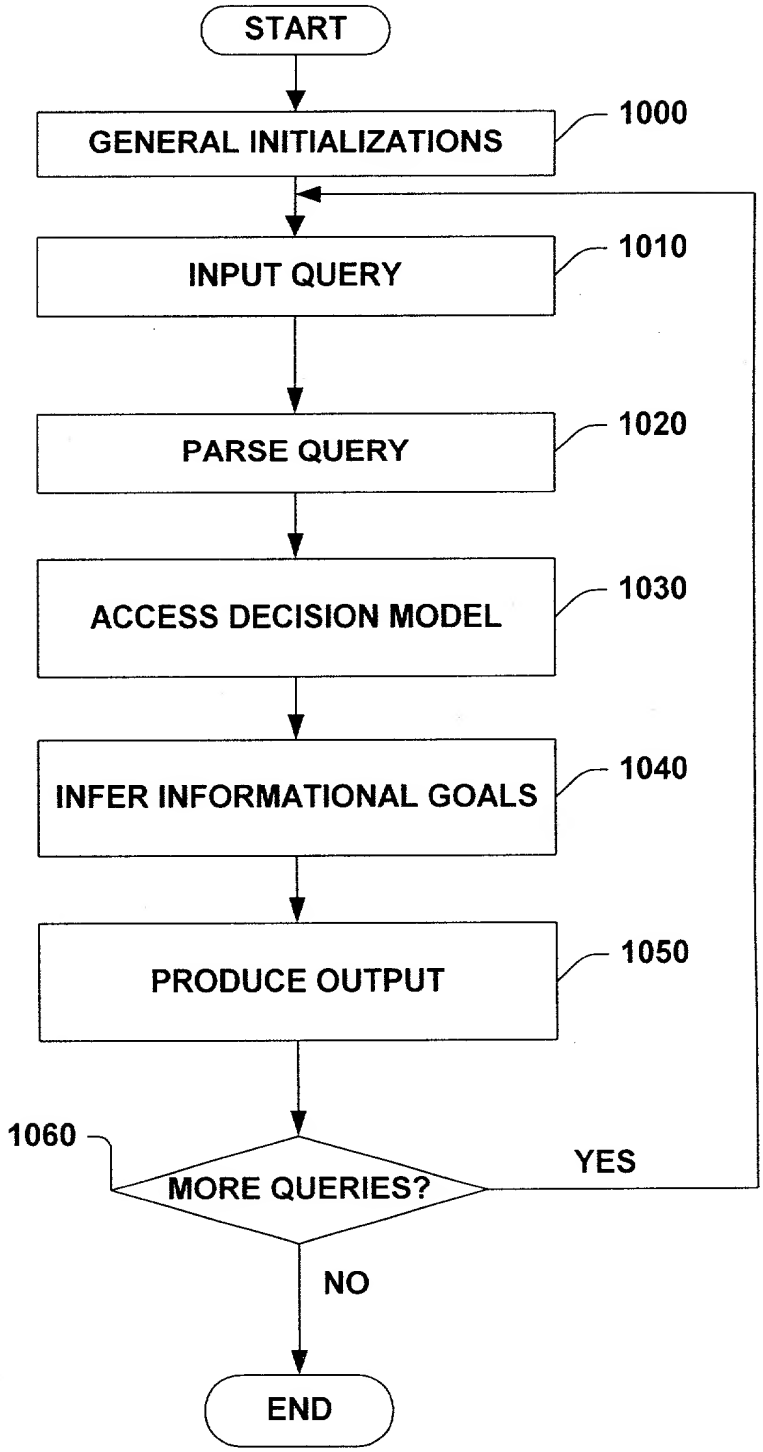
START
GENERAL INITIALIZATIONS
1000
INPUT QUERY
1010
PARSE QUERY
1020
ACCESS DECISION MODEL
1030
INFER INFORMATIONAL GOALS
1040
PRODUCE OUTPUT
1050
1060
MORE QUERIES?
YES
NO
END

Fig. 11

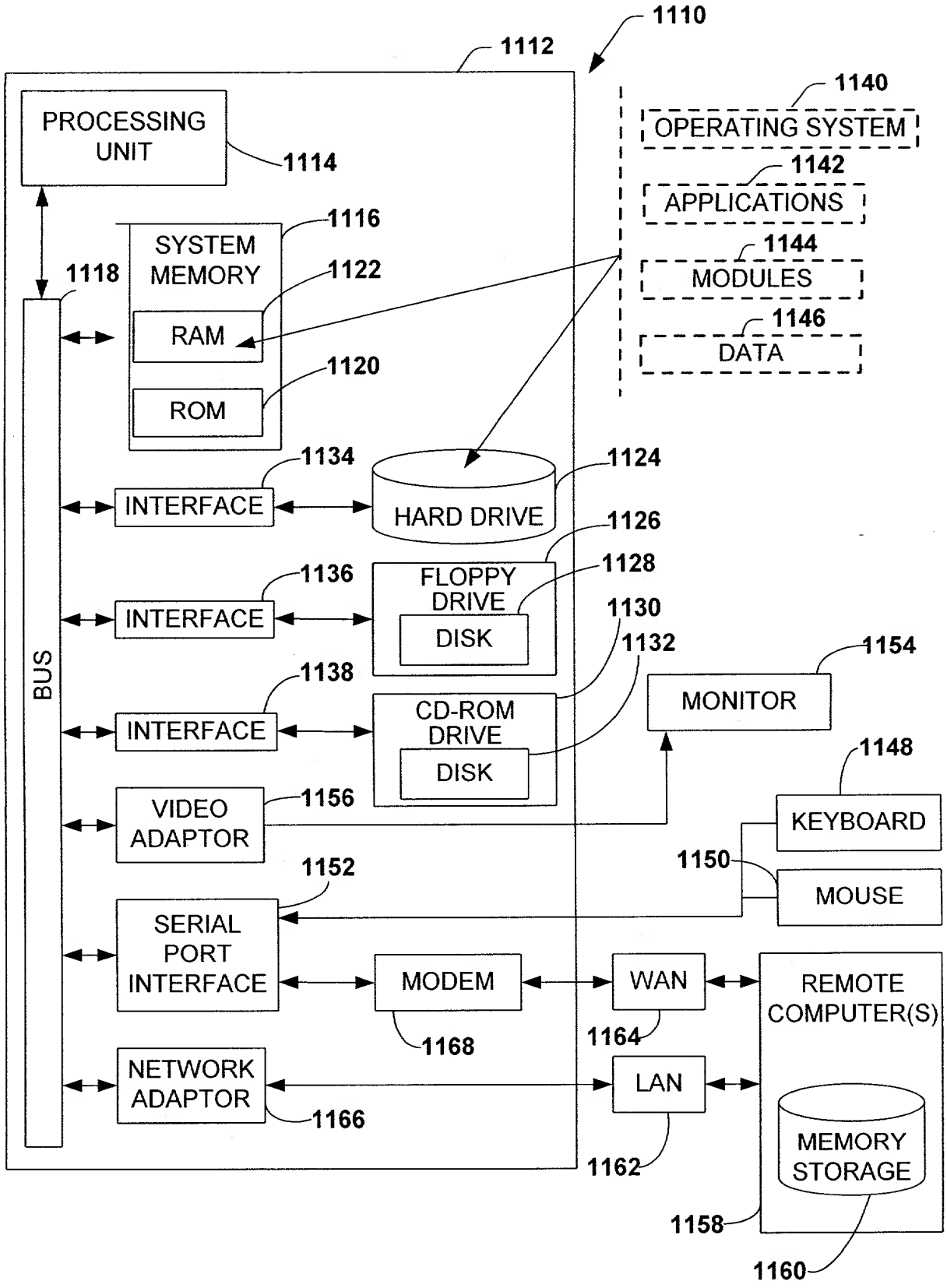
1110
1112
PROCESSING UNIT
1114
1140
OPERATING SYSTEM
1142
APPLICATIONS
1144
MODULES
1146
DATA
1116
SYSTEM MEMORY
1118
1122
RAM
1120
ROM
1134
INTERFACE
HARD DRIVE
1124
1126
1136
INTERFACE
FLOPPY DRIVE
1128
DISK
1130
1132
1154
MONITOR
1138
INTERFACE
CD-ROM DRIVE
DISK
1148
VIDEO ADAPTOR
1156
KEYBOARD
1150
MOUSE
1152
SERIAL PORT INTERFACE
MODEM
WAN
REMOTE COMPUTER(S)
1168
1164
NETWORK ADAPTOR
LAN
1166
1162
MEMORY STORAGE
1158
1160
BUS

FIG. 12